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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/148,806 09/04/98 ARMSTRONG

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*CR*  
EXAMINER

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ART UNIT	PAPER NUMBER
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2735

*4*  
DATE MAILED:  
05/24/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

*See Attachments*

<b>Office Action Summary</b>	Application No. <b>09/148,806</b>	Applicant(s) <b>Armstrong</b>
	Examiner <b>Timothy Edwards</b>	Group Art Unit <b>2735</b>

Responsive to communication(s) filed on Sep 4, 1998.

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

#### Disposition of Claims

Claim(s) 1-11 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 1-11 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claims \_\_\_\_\_ are subject to restriction or election requirement.

#### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

#### Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). 02

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,3,6-10, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Thorne, III et al [US 5,670,955]**.

Considering claim 1, Thorne, III et al discloses a 'method and apparatus for generating directional and force vector in an input device' having all the claimed subject matter as noted; an improved hand-hold-able remote controller for controlling a host device; Thorne, et al discloses, a) the remote controller including a housing (see col 3, lines 43-46, fig 1, item 66); b) an electrical power source is inherent in remote controller (66); c) electronic circuitry within the housing (see col 2, lines 31-36; d) an emitter for emitting function control signal from the housing (see col 3, lines 50-55; e) a plurality of finger depressible buttons exposed on the housing (see col 3, lines 48 and 49, fig 1, items 58 and 56); f) an interfacing with sensors electrically associated with the

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circuitry for allowing user selection of function-control signals emitted for controlling a host (see col 4, line 62 to col 5, line 4, see fig 5); g) at least one sensors capable of providing at least three readable states of varied conductance is not specifically recited by Thorne. In col 5, lines 3-9, Thorne addresses the use of variable resistance switches. In col 2, lines 48-62 Thorne addresses calculation of a direction and force of the users input. In col 4, lines 2-7 Thorne addresses the controlling of the direction and speed of a symbol's movement by an applied force on a thumbpad. Even though, Thorne does not specifically recite sensing at least three readable states of varied conductance these functions are suggested by the Thorne system because Thorne thumbpad switch would have means to sense the switch being activated (i.e. on state, first readable state) and Thorne addresses means to detect a particular area of the thumbpad which would indicate a direction (second readable state) and the force applied to the thumbpad indicate the speed of an object in a particular direction (third readable state). Therefore, it would have been obvious to one of ordinary skill in the art the system of Throne is functionally equivalent to the claimed limitation because Thorne suggests the sensing of at least three readable states and the use of a variable resistance switch as stated above; h) the state dependant upon depressive pressure applied to the variable-conductance sensor through depression of at least one of the finger depressible buttons (see col 4, lines 2-7, variable conductance is addressed in part (g) above); I) circuitry including means for reading the at least three readable states and for emitting distinct function-control signals for each of at least two states of the at least three readable states (see col 6, lines 30-36).

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Considering claim 3, Thorne, et al discloses, a) the remote controller including a housing (see col 3, lines 43-46, fig 1, item 66); b) an electrical power source is inherent in remote controller (66); c) electronic circuitry within the housing (see col 2, lines 31-36; d) an emitter for emitting function control signal from the housing (see col 3, lines 50-55; e) a plurality of finger depressible buttons exposed on the housing (see col 3, lines 48 and 49, fig 1, items 58 and 56); f) an interfacing with sensors electrically associated with the circuitry for allowing user selection of function-control signals emitted for controlling a host (see col 4, line 62 to col 5, line 4, see fig 5); g) the state dependant upon depressive pressure applied to the variable-conductance sensor through depression of at least one of the finger depressible buttons (see col 4, lines 2-7, variable conductance is addressed in part (I) below); h) circuitry including means for reading the at least three readable states and for emitting distinct function-control signals for each of at least two states of the at least three readable states (see col 6, lines 30-36); I) at least two of the sensors each structured to provide at least three readable states of varied conductance is not specifically recited by Thorne. In col 3, lines 61-63, Thorne addresses the use of four directional switches the depression of one of these switches would generate the direction of the symbol. Thorne addresses the capability of providing at least three readable states of varied conductance as cited in col 5, lines 3-9, Thorne addresses the use of variable resistance switches. In col 4, lines 2-7 Thorne addresses the controlling of the direction and speed of a symbol's movement by an applied force on a thumbpad. Even though, Thorne does not specifically recite at least two sensors each structured to provide at least three readable states of varied conductance these functions are

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suggested by the Thorne system because Thorne thumbpad switch would have means to sense the switch being activated (i.e. on state, first readable state); in col 3, lines 61-64 and col 4, lines 41-44 Thorne addresses means to detect one of four particular area (see fig 1, item 10), of the thumbpad which would indicate the direction (second readable state, of four readable states) and the force applied to the thumbpad indicate speed (third readable state). Therefore, it would have been obvious to one of ordinary skill in the art the system of Throne is functionally equivalent to the claimed limitation because Thorne suggests the sensing of at least three readable states and suggest the use of a variable resistance sensing means as stated above; j) the second button variably depressible to allow applying varied depressive pressure to the second sensor is addressed in col 3, lines 61-64 and col 4, lines 41-44; k) the second sensor associated with means of the circuitry for reading and emitting tuner channel-down selecting type of the function control signals is not specifically recited by Thorne. However, in col 3, lines 44-54 Thorne addresses the use of an interactive TV controller (62) which receives signals from a remote control unit (66), the TV controller (62) is connected to a TV set (64) for displaying graphic symbols and options on its screen. Therefore, it would have been obvious to one of ordinary skill in the art to modify the function of Thorne remote control unit to emit tuner channel-down selecting type of the function control signals because Thorne suggest the use of a remote control unit to emit signals to a TV controller for controlling symbols and options on the TV's screen.

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Considering claim 6, a) the remote controller including a housing (see col 3, lines 43-46, fig 1, item 66); b) an electrical power source is inherent in remote controller (66); c) electronic circuitry within the housing (see col 2, lines 31-36; d) a radiation emitter for emitting function-control signal from the housing (see col 3, lines 50-55, fig 1 item (54); e) a plurality of finger depressible buttons exposed on the housing (see col 3, lines 48 and 49, fig 1, items 58 and 56); f) an interfacing with sensors electrically associated with the circuitry for allowing user selection of function-control signals emitted as radiation by the radiation emitter for controlling a host (see col 4, line 62 to col 5, line 4, see fig 5); g) at least some of the sensors being only on/off sensors is not specifically recited by Thorne. In col 3, lines 48 and 49, fig 1, items 58 and 56, Thorne addresses the use of control buttons. This would suggest buttons which would have an on/off state because these are the type of switches that are associated with a remote control unit (i.e. when the switch is closed (on position) it generates an output, when switch is release (off position) the switch is open). Therefore, it would have been obvious to one of ordinary skill in the art this limitation is functional addressed by Thorne because Thorne recites the use of a plurality buttons which are on a remote control unit and on/off switches are usually the type of switches that are associated with a remote control unit; h) depressing one of the buttons with any user selectable pressure level activates one function-control signal of a plurality of activatable function-control signals associated with the button, whereby the user selects function-control signals associated with the button by way of selecting the pressure applied to the button (see col 3, lines 38-42 and col 4, lines 5-7.

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Considering claim 7, manipulating channel rate by selecting any user selectable pressure level of the plurality of user selectable pressure levels associated with the button is not specifically recited by Thorne. However, in col 4, lines 18-36, Thorne addresses varying the speed of a symbol's movement on a TV display and in col 4, lines 5-7 Thorne addresses the speed of the symbol is controlled by the amount of force applied to the switch. Therefore, it would have been obvious to one of ordinary skill in the art to modify the transmitted signals of the remote control unit of Thorne to include the changing of channels on a TV set because Thorne addresses the controlling of the rate of movement of a symbol associated with a TV set.

Considering claim 8, the channel change rate is such that channel change rate increases with increasing pressure applied to the button is not specifically recited by Thorne. However, in col 4, lines 5-7 Thorne addresses the speed of the symbol is controlled by the amount of force applied to the switch. Therefore, it would have been obvious to one of ordinary skill in the art to modify the transmitted signals of the remote control unit of Thorne to include the changing of channels on a TV set because Thorne addresses the controlling of the rate of movement of a symbol associated with a TV set.

Considering claim 9, manipulating video play rate by selecting any of user selectable pressure level of the plurality of user selectable pressure levels associated with the button is not specifically recited by Thorne. However, in col 4, lines 5-7 Thorne addresses the speed of the

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symbol is controlled by the amount of force applied to the switch. In col 3, lines 44-54 Thorne addresses the use of an interactive TV controller (62) which receives signals from a remote control unit (66), the TV controller (62) is connected to a TV set (64) for displaying graphic symbols and options on its screen. Therefore, it would have been obvious to one of ordinary skill in the art to modify the transmitted signals of the remote control unit and the interactive device (62) of Thorne to include the manipulation of the video play rate of an interactive TV device because Thorne addresses the controlling of the rate of movement of a symbol associated with a TV set. Throne, also, addresses the transmission of signals to a device which interact with a TV set.

Considering claim 10, the limitation of this claim is interpreted and rejected as stated in claim 9.

3. Claims 2,4,11, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Thorne, III et al**, and further in view of **Martinelli et al [US 5, 943,044]**.

Considering claims 2 and 11, a) the remote controller including a housing (see col 3, lines 43-46, fig 1, item 66); b) an electrical power source is inherent in remote controller (66); c) electronic circuitry within the housing (see col 2, lines 31-36; d) an emitter for emitting function-control signal from the housing (see col 3, lines 50-55; e) a plurality of finger deppressible buttons

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exposed on the housing (see col 3, lines 48 and 49, fig 1, items 58 and 56); f) an interfacing with sensors electrically associated with the circuitry for allowing user selection of function-control signals emitted for controlling a host (see col 4, line 62 to col 5, line 4, see fig 5); g) a plurality of sensor read by the circuitry as sensors having only two readable states is not specifically recited by Thorne. On page 21 of applicant's specification, the examiner interprets "two readable states to mean, on/off states". In col 3, lines 48 and 49, fig 1, items 58 and 56, Thorne addresses the use of control buttons. This would suggest buttons which would have an on/off state because these are the type of switches that are associated with a remote control unit (i.e. when the switch is closed (on position) it generates an output, when switch is release (off position) the switch is open). Therefore, it would have been obvious to one of ordinary skill in the art this limitation is functional addressed by Thorne because Thorne recites the use of a plurality buttons which are on a remote control unit and switches that are associated with a remote control unit are usually the on/off type switches; h) at least one of the sensors structured as a pressure-sensitive variable-conductance, the states dependant upon depressive pressure applied to the variable-conductance sensor is not specifically recited by Thorne. However, in col 5, lines 3-9, Thorne addresses the use of variable resistance switches and in col 4, lines 2-7 Thorne addresses the controlling of speed and direction of a symbol is controlled by the amount of force applied to a thumbpad. In col 5, lines 3-7 and lines 42-49 Martinelli et al teaches the use variable pressure resistance sensors to convey control signals to a computer and the function performed by the computer is proportional to the amount of actual pressure being applied to a touchpad. Because both Thorne and Martinelli

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references are concern with the movement of a displayed symbol, one of ordinary skill in the art would find it highly desirable to use a pressure-sensitive variable-conductance sensor in the Thorne system as taught by Martinelli because Thorne suggests the use of variable resistive switches. Therefore, it would have been obvious to one of ordinary skill in the art to modify the switching means of Thorne with a functional equivalent method because Thorne suggests the use of variable resistive switches; I) circuitry including means for reading the at least three readable states and for emitting distinct function-control signals for each of at least two states of the at least three readable states (see col 6, lines 30-36).

Considering claim 4, a) the first and second sensors are each elastomeric dome-cap sensors (see col 8-15, see fig 2); b) each sensor including a pressure-sensitive variably-conductive material position over proximal conductive circuit elements of the circuitry is not specifically recited by Thorne. However, in col 5, lines 3-9, Thorne addresses the use of variable resistance switches. In col 5, lines 3-7 and lines 42-49 Martinelli et al teaches the use variable pressure resistance sensors to convey control signals to a computer and the function performed by the computer is proportional to the amount of actual pressure being applied to a touchpad. Because both Thorne and Martinelli references are concern with the movement of a displayed symbol, one of ordinary skill in the art would find it highly desirable to use a pressure-sensitive variable-conductance sensor in the Thorne system as taught by Martinelli because Thorne suggests the use of variable resistive switches. Therefore, it would have been obvious to one of ordinary skill in the

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art to modify the switching means of Throne with a functional equivalent method because Thorne suggests the use of variable resistive switches.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Thorne** and **Martinelli et al.** as applied to claim 2 above, and further in view of **Sellers [US 5,995,026]**.

Considering claim 5, the limitations of this claim are interpreted and rejected as stated in claim 2; a) except emitting by the emitter a first signal type and a second signal type, emission of either one of signal types determined by an amount of time of depression of the button is not specifically recited by Thorne. However, Thorne does address the emitting of a first and second signal type. In col 9, lines 3-5 and lines 14-30, Seller teaches the use of a force sensing resistor switches for generating a plurality of outputs in response to a force level and time period the switch is depressed, emitting a first and second signal type determined by the amount of time the button is depressed. In col 4, lines 2-6 Sellers suggests the use of his keyboard in a variety of other electronic apparatus keyboards. Therefore, it would have been obvious to one of ordinary skill in the art to modify the key's output function of Throne by augmenting a time aspect as taught by Sellers because both references a concern with the transmission of data to a device with respect to the force applied to the keys and the sensing of time would further expand the functionality of a given key; b) a second signal type further including a signal representative of a

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depressive level of depressive level of depressive pressure applied to the button is also addressed by Seller in col 9, lines 3-5 and lines 14-30. Obviousness argument is as stated above.

5. Any inquiry concerning this communication should be directed to Examiner Timothy Edwards at telephone number (703) 305-4896. The examiner can normally be reached on Monday-Thursday, 8:30a-4:00p. The examiner can not be reached on Fridays.

If attempt to reach the examinee by telephone are unsuccessful, the examiner's supervisor, Michael Horabik, can be reached on (703) 305-4704.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-8576, Mon-Fri., 8:30a-5:00p.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(703) 308-9051, (for formal communications intended for entry)

**Or:**

(703) 305-3988 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA., Sixth Floor (Receptionist).



Timothy Edwards  
May 20, 2000